

WHAT IS CLAIMED IS:

[c1] A system for determining a prepayment score representative of prepayment propensity of an individual applicant, comprising:

at least one debt instrument origination computer terminal for accepting and transmitting a debt instrument application of an individual applicant;

a computer network connected to the at least one debt instrument origination computer terminal for receiving the transmitted debt instrument application of the individual applicant;

a communication server connected to the computer network for receiving the transmitted debt instrument application of the individual applicant;

an application parser connected to the communications server for receiving the transmitted debt instrument application of the individual applicant from the communications server and parsing the information into debt instrument information and applicant information;

a prepayment model library database comprising debt instrument prepayment models connected to the application parser for receiving the debt instrument information and fitting the debt instrument information into the debt instrument prepayment models and for transmitting debt instrument prepayment models that match the debt instrument information; and

a prepayment calculation server comprising a prepayment score generation model connected to the prepayment model library database for receiving the debt instrument

prepayment models and calculating a prepayment score for the debt instrument application of the individual applicant based upon the debt instrument prepayment model and the prepayment score generation model, the prepayment calculation server being further adapted to transmit the prepayment score to at least one debt instrument origination computer terminal via the communications server and the computer network;

where the prepayment score is calculated from the formula:

$$Score = \sum_T TP(T)$$

where T represents time and P represents prepayment; and

wherein the at least one debt instrument origination computer terminal is adapted to use the prepayment score to adjust terms of the debt instrument of the individual applicant.

[c2] The system for determining a prepayment score of claim [c1], where the prepayment model library database further comprises:

a model training server for creating the debt instrument prepayment models for the prepayment model library database; and

prepayment historical data storage means connected to the model training server, the prepayment historical data further comprises prepayment statistics regarding debt instruments of various types.

[c3] The system for determining a prepayment score of claim [c1], where the prepayment calculation server further comprises an econometric model that

generates Low Discrepancy Sequence (LDS)-based scenarios of econometric parameters for input to the prepayment calculation server.

- [c4] The system for determining a prepayment score of claim [c1], further comprising means adapted to calculate a total prepayment at time T from the formula:

$$P(T) = (1/S) \sum_{s=1}^S P_s(T)$$

where S represents the number of scenarios and P represents the prepayment amount for a given scenario.

- [c5] The system for determining a prepayment score of claim [c4], further comprising means adapted to calculate the total prepayment, accumulated by time, in scenario s from the formula:

$$P_s(T) = \prod_t p_s(t)$$

where p(t) is a prepayment value.

- [c6] The system for determining a prepayment score of claim [c5], further comprising means adapted to calculate the prepayment value in a given scenario from the formula:

$$p_s(t) = \mathfrak{R}(A, L, E_s(t))$$

where A is the applicant's data, L is the debt instrument parameters, E is the economic parameters and \mathfrak{R} is an analytical prepayment model.

[c7] The system for determining a prepayment score of claim [c1], where the applicant is either an individual consumer or an individual household.

[c8] The system for determining a prepayment score of claim [c1], further comprising computer-based means for using data associated with the prepayment score of the applicant and terms of the debt instrument to determine a calculation selected from the group consisting of: a value of the debt instrument, a value of a portfolio containing the debt instrument, a risk to holders of the debt instrument, and a price of a servicing contract for a portfolio containing said debt instrument.

[c9] A method for determining a prepayment score representative of prepayment propensity of an individual applicant, comprising:

collecting debt instrument and applicant information at a debt instrument originator;

transmitting the debt instrument and applicant information over a network;

receiving the debt instrument and applicant information at a service bureau;

the service bureau calculating a prepayment score the individual applicant, where the prepayment score is calculated from the formula:

$$Score = \sum_T TP(T)$$

where T represents time and P represents prepayment;

the service bureau returning the prepayment score over the network to the debt

instrument originator; and

the debt instrument originator using the prepayment score to customize a debt instrument product for the individual applicant.

[c10] The method for determining a prepayment score of claim [c9], where calculating a prepayment score for the applicant comprises parsing the information into debt instrument information and applicant information.

[c11] The method for determining a prepayment score of claim [c10], further comprising providing the applicant information to a prepayment model library database and the debt instrument information to a prepayment calculation server.

[c12] The method for determining a prepayment score of claim [c11], further comprising the prepayment model library determining the prepayment model that best applies to the debt instrument information and providing that prepayment model to the prepayment calculation server.

[c13] The method for determining a prepayment score of claim [c12], further comprising the prepayment calculation server receiving a prepayment model and an econometric model, where the prepayment calculation server further calculates a prepayment score for the applicant.

[c14] The method for determining a prepayment score of claim [c13], where the total prepayment at time T is calculated from the formula:

$$P(T) = (1/S) \sum_{s=1}^S P_s(T)$$

where S represents the number of scenarios and P represents the prepayment amount for a given scenario.

[c15] The method for determining a prepayment score of claim [c14], where the total prepayment, accumulated by time, in scenario s is calculated from the formula:

$$P_s(T) = \prod_i p_s(t_i)$$

where p(t) is a prepayment value.

[c16] The method for determining a prepayment score of claim [c15], where the prepayment value in a given scenario is calculated from the formula:

$$p_s(t) = \Re (A, L, E_s(t))$$

where A is the applicant's data, L is the debt instrument parameters, E is the economic parameters and \Re is an analytical prepayment model.

[c17] The method for determining a prepayment score of claim [c9], where the applicant is defined as an individual consumer or an individual household.

[c18] The method for determining a prepayment score of claim [c9], further comprising rating a broker based on prepayment scores of applicants that are clients of said broker.

[c19] The method for determining a prepayment score of claim [c9], further comprising using the prepayment score of the applicant and terms of the debt instrument to assist in determining a calculation selected from the group consisting of: a value

of the debt instrument, a value of a portfolio containing the debt instrument, a risk to holders of the debt instrument, and a price of a servicing contract for a portfolio containing said debt instrument.

[c20] The method for determining a prepayment score of claim [c9], further comprising packaging said debt instrument into a portfolio based, at least in part, on the prepayment score of the applicant.